UBER PICKUPS ANALYSIS

0.0.1 Uber Pickups Analysis Quiz

The question set is based on the August dataset, uber-raw-data-aug14.csv.

Keeping the dataset ready before questions

[18]:
```
import pandas as pd

df = pd.read_csv('uber-raw-data-aug14.csv')
df.head()
```

[18]:

	Date/Time	Lat	Lon	Base
0	8/1/2014 0:03:00	40.7366	-73.9906	B02512
1	8/1/2014 0:09:00	40.7260	-73.9918	B02512
2	8/1/2014 0:12:00	40.7209	-74.0507	B02512
3	8/1/2014 0:12:00	40.7387	-73.9856	B02512
4	8/1/2014 0:12:00	40.7323	-74.0077	B02512

Q1. On what date did we see the most number of Uber pickups? Skill Test: Grouping & Counting

[3]: *# Convert the 'Date/Time' column to datetime format*
df['Date/Time']=pd.to_datetime(df['Date/Time']) df['Date/Time']=df['Date/Time'].dt.date

```
# Group by date and count the number of pickups
pick_cnt=df.groupby('Date/Time').size().reset_index(name='Pickup_cou
nt')

# Sort the DataFrame by 'Pickup_count' in descending order
sorted_pick_cnt = pick_cnt.sort_values(by='Pickup_count',
ascending=False)

# Take the first row, which represents the date with the highest
number of␣
 ↪pickups date_with_highest_pickups =

sorted_pick_cnt.iloc[0]['Date/Time'] print("Date with the highest

number of pickups:", date_with_highest_pickups)
```

Date with the highest number of pickups: 2014-08-07

Q.2 How many Uber pickups were made on the date with the highest number of pickups? Skill Test:
Indexing and filtering

[8]:
```
# Filter the DataFrame to include only the rows for the date with the highest␣ ↪number of pickups
# max_pick_row=df[df['Date/Time']==date_max_pick.loc['Date/Time']]
pick_cnt=df.groupby('Date/Time').size().reset_index(name='Pickup_count') date_max_pick=pick_cnt.max()

# Get the count of pickups on the highest date print("Count of pickups on the date with the highest number of pickups: ↪",date_max_pick.iloc[1])
```

Count of pickups on the date with the highest number of pickups: 32759

Q.3 How many unique TLC base companies are affiliated with the Uber pickups in the dataset? Skill Test: Counting unique values

[9]:
```
# Count the number of unique TLC base companies

unique_columns = df['Base'].nunique()

print("Number of unique TLC base companies: ", unique_columns)
```

```
Number of unique TLC base companies: 5
```

Q.4 Which TLC base company had the highest number of pickups? Skill Test:
Grouping, counting, and finding the maximum

[11]:
```
# Group by TLC base company and count the number of pickups

num_pick=df.groupby('Base').size().reset_index(name='number_of_pickups')

# Find the TLC base company with the highest number of pickups
sorted_pick_cnt = num_pick.sort_values(by='number_of_pickups', ascending=False) max_base=sorted_pick_cnt.iloc[0] print("TLC base company with the highest number of pickups:",max_base[0])
```

TLC base company with the highest number of pickups: B02617

Q.5 How many Uber pickups were made at each unique TLC base company? Skill Test: Grouping and counting

[12]:
```
# Group by TLC base company and count the number of pickups
```

```
num_pick=df.groupby('Base').size().reset_index(name='number_of_pickups') num_pick
```

[12]:

	Base	number_of_pickups
0	B02512	31472
1	B02598	220129
2	B02617	355803
3	B02682	173280
4	B02764	48591

Q.6 Can you determine the busiest time of day for Uber pickups based on the date/time column?

Skill Test: Extracting time components, grouping, counting, and finding the maximum

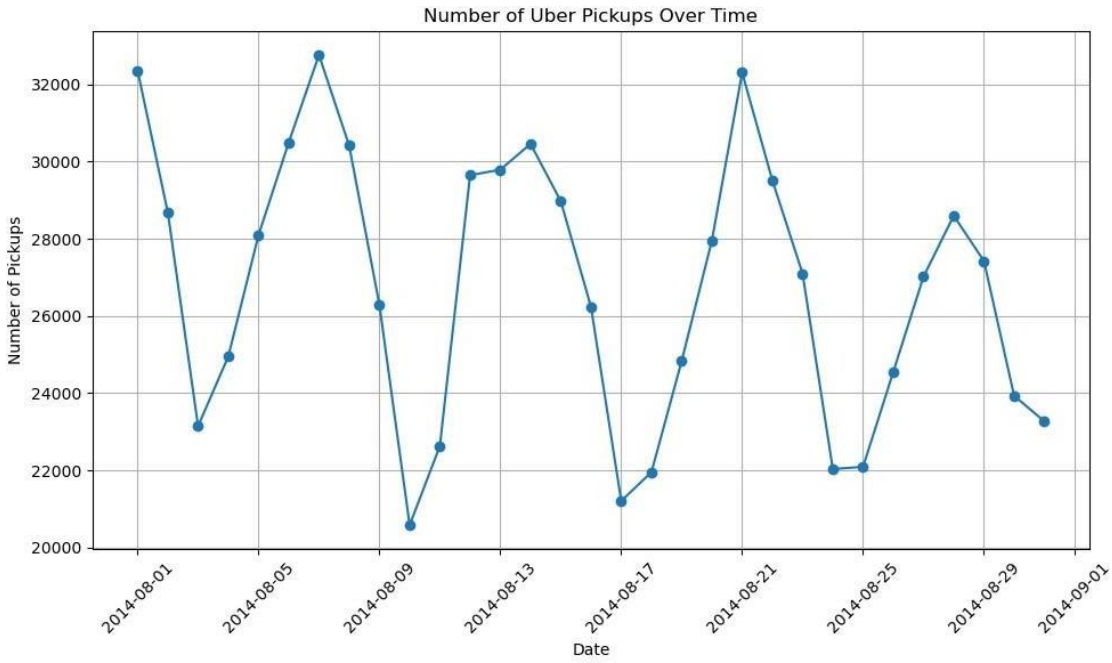
[19]:
```
# Extract the hour from the 'Date/Time' column
df['Hour'] =
pd.to_datetime(df['Date/Time']).dt.hour

# Group by hour and count the number of pickups
pickups_by_hour = df.groupby('Hour').size()

# Find the hour with the highest number of pickups
busiest_hour = pickups_by_hour.idxmax() print('Busiest time
of the day for Uber pickups (hour):', busiest_hour)
```

Busiest time of the day for Uber pickups (hour): 17

Q.7 Can you create a visualization (e.g., a bar chart or line plot) to represent the number of Uber pickups over time? Skill Test: Data Visualization using Plotting

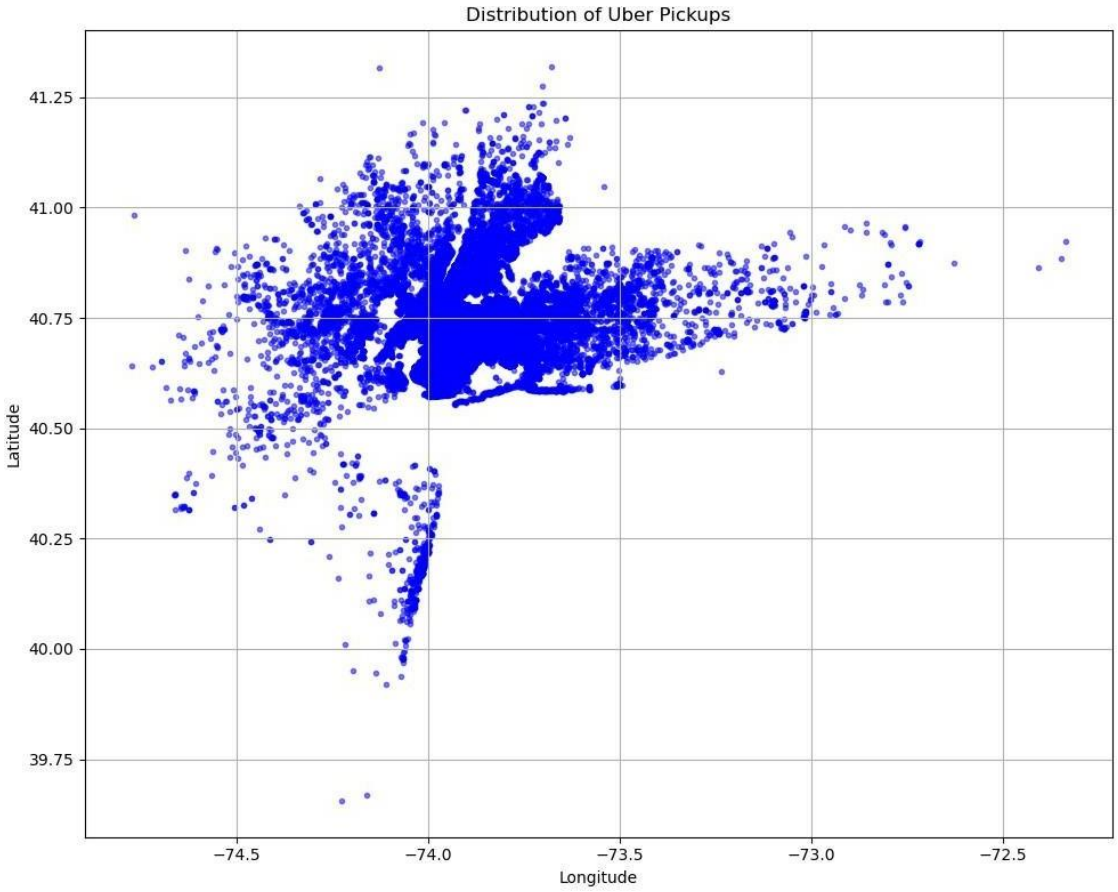
[14]:
```
import matplotlib.pyplot as plt

# Group by date and count the number of pickups
pickups_by_date = df.groupby('Date/Time').size()

# Create a line plot to visualize the number of pickups over time
plt.figure(figsize=(10, 6))
plt.plot(pickups_by_date.index, pickups_by_date.values, marker='o', _
 ↪linestyle='-')
plt.title('Number of Uber Pickups Over Time ')
plt.xlabel('Date')
plt.ylabel('Number of Pickups')
plt.xticks(rotation=45)
plt.grid(True)
plt.tight_layout()
plt.show()
```

function



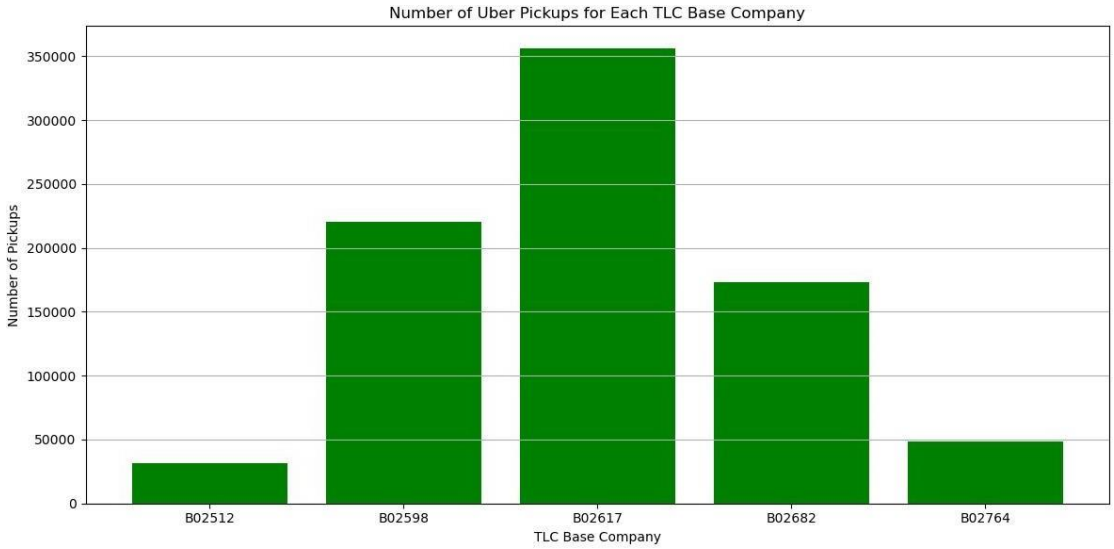
Q8. Can you create a scatter plot to visualize the distribution of Uber pickups based on latitude and longitude? **Skill Test:** Scatter Plot

[15]:
```
# Create a scatter plot to visualize the distribution of Uber pickups based on␣
↪latitude and longitude plt.figure(figsize=(10, 8))
plt.scatter(df['Lon'], df['Lat'], alpha=0.5, marker='.',
color='b') plt.title('Distribution of Uber Pickups')
plt.xlabel('Longitude')
plt.ylabel('Latitude')
plt.grid(True)
plt.tight_layout()
plt.show()
```



Q9. Can you create a bar chart to compare the number of Uber pickups for each TLC base company? Skill Test: Bar Chart

[16]:
```
# Create a bar chart to compare the number of Uber pickups for each TLC base company
plt.figure(figsize=(12, 6))
plt.bar(num_pick['Base'], num_pick['number_of_pickups'], color='green')
plt.title('Number of Uber Pickups for Each TLC Base Company')
plt.xlabel('TLC Base Company')
plt.ylabel('Number of Pickups')
plt.grid(axis='y')
plt.tight_layout()
```

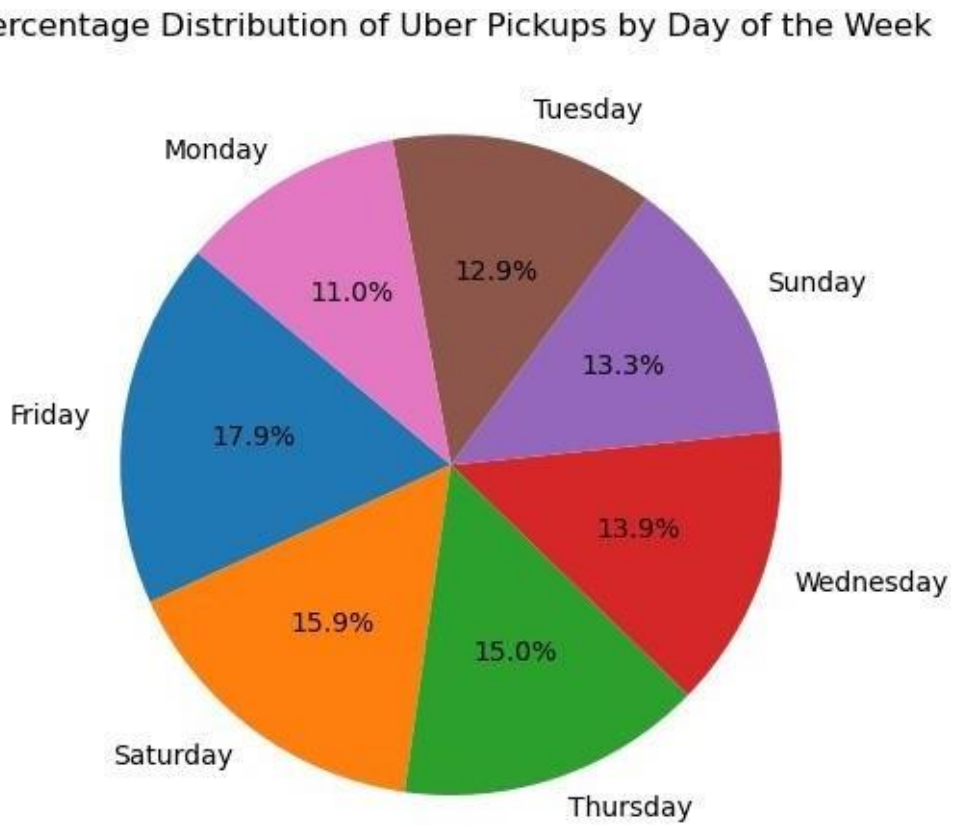


[ ]:

Q10. Can you create a pie chart to display the percentage distribution of Uber pickups for each day of the week? Skill Test: Pie Chart

[17]:
```
# Group by day of the week and count the number of pickups
pickups_by_day =
pd.to_datetime(df['Date/Time']).dt.day_name().value_counts() #create
the percentage distribution of pickups for each day of the week
percentage_distribution=pickups_by_day/pickups_by_day.sum()*100
# Create a pie chart to display the percentage distribution of Uber
pickups for␣
 ↪each day of the week
plt.pie(percentage_distribution,labels=percentage_distribution.
 ↪index,autopct='%1.1f%%',startangle=140)
plt.title('Percentage Distribution of Uber Pickups by Day of
the Week')
```

plt.tight_layout() plt.show()


Percentage Distribution of Uber Pickups by Day of the Week
Tuesday
Monday
Sunday
Friday
Wednesday
Saturday
Thursday
11.0%
12.9%
13.3%
17.9%
13.9%
15.9%
15.0%

[ ]:

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[ ]: